WHAT IS CLAIMED IS:

1. A proliferative ileitis vaccine comprising tissue culture grown *L. intracellularis* wherein the vaccine produces antibodies in pigs reacting with at least one of the antigens selected from the group consisting of 21 kDa, 31 kDa, 41 kDa, 43 kDa, 44 kDa, 60 kDa, 71 kDa, 115 kDa and >115 kDa.

2. The proliferative ileitis vaccine according to Claim 1 wherein the tissue culture grown *L. intracellularis* comprises an antigen selected from the group consisting of a whole culture of *L. intracellularis*, an inactivated tissue culture of *L. intracellularis*, a modified live formulation of *L. intracellularis*, an extract from *L. intracellularis*, a subunit obtained from *L. intracellularis*, a recombinant obtained from *L. intracellularis* and naked DNA encoding a target immunogen of *L. intracellularis*.

3. The proliferative ileitis vaccine according to Claim 1 further comprising an inactivating agent and an adjuvant.

4. The proliferative ileitis vaccine according to Claim 3, wherein the inactivating agent is selected from the group consisting of formalin, beta-propiolactone, heat, binary ethylenimine, detergents and freeze/thaw.

5. The proliferative ileitis vaccine according to Claim 3, wherein the adjuvant is selected from the group consisting of polymers, oil in water, water-in-oil-in-water, lipids, aluminum hydroxide, aluminum phosphate, aluminum sulfate, immunomodulators and combinations thereof.

6. The proliferative ileitis vaccine according to Claim 5, wherein the polymer adjuvant is selected from the group consisting of Carbopol, HAVLOGEN® and POLYGEN®.

7. The proliferative ileitis vaccine according to Claim 5, wherein the oil-in-water adjuvant is selected from the group consisting of EMULSIGEN®, EMULSIGEN PLUS® and EMUGEN®.

8. The proliferative ileitis vaccine according to Claim 1, wherein the *L. intracellularis* is modified live.

9. The proliferative ileitis vaccine according to Claim 1, wherein the *L. intracellularis* is selected from the group consisting of a subunit immunogen and a recombinant immunogen.

10. The proliferative ileitis vaccine according to Claim 9, wherein the *L. intracellularis* subunit or recombinant is selected from the group of antigens with molecular weights of 21 kDa, 31 kDa, 41 kDa, 43-44 kDa, 60 kDa, 71 kDa and ≥ 115 kDa.

11. A monoclonal antibody recognizing a *L. intracellularis* antigen with a molecular weight selected from the group consisting of 21 kDa, 31 kDa, 41 kDa, 43-44 kDa, 60 kDa, 71 kDa and ≥115 kDa.

12. A method for growing *L. intracellularis* in a susceptible tissue culture to an amount sufficient to protect a mammal against proliferative ileitis caused by *L. intracellularis*, comprising inoculating the *L. intracellularis* onto the tissue culture; harvesting the tissue culture grown *L. intracellularis*; and formulating the harvested *L. intracellularis* into a vaccine.

13. A method of producing a proliferative ileitis vaccine comprising the steps of:

a. growing *L. intracellularis* in a susceptible tissue culture;
b. harvesting said tissue culture grown *L. intracellularis*;
c. inactivating said harvest; and
d. adjuvanting said inactivated harvest into a vaccine.

14. A method of producing a proliferative ileitis vaccine comprising the steps of:

a. growing a modified live *L. intracellularis* in a susceptible tissue culture;
b. harvesting said tissue culture grown *L. intracellularis*;
c. stabilizing said harvested tissue culture grown *L. intracellularis;* and
d. formulating the stabilized harvested tissue culture grown *L. intracellularis* to produce a vaccine.

15. A method of producing a proliferative ileitis subunit vaccine comprising the steps of:

a. growing *L. intracellularis* in a susceptible tissue culture;

b. harvesting said tissue culture grown *L. intracellularis;*

c. extracting an immunogen from the harvested tissue culture grown *L. intracellularis* to produce a subunit;

d. optionally inactivating the subunit; and

e. adjuvanting the subunit to produce a vaccine.

16. A method of producing a proliferative ileitis vaccine comprising the steps of:

a. growing *L. intracellularis* in a susceptible tissue culture;

b. harvesting the tissue culture grown *L. intracellularis;*

c. inactivating the *L. intracellularis* harvest;

d. extracting a protective antigen from the harvested, inactivated tissue culture grown *L. intracellularis* to produce a subunit; and

e. adjuvanting the subunit to produce a vaccine.

17. A method of producing a recombinant proliferative ileitis vaccine comprising the steps of:

a. identifying a target immunogen of *L. intracellularis*;

b. constructing and screening a *L. intracellularis* genomic library;

c. identifying a recombinant clone producing the target immunogen of *L. intracellularis*;

d. identifying a genes encoding an immunoreactive epitope of the target immunogen of *L. intracellularis*;

e. expressing the immunoreactive epitope using a production vector; and

f. formulating the immunoreactive epitope into a vaccine.

18. A method of producing a recombinant proliferative ileitis vaccine comprising the steps of:

a. identifying a target immunogens of *L. intracellularis*;

b. constructing and screening a *L. intracellularis* genomic library;

c. identifying a recombinant clone producing the target immunogen of *L. intracellularis*;

d. identifying a genes encoding an immunoreactive epitope of the target immunogen of *L. intracellularis*;

e. expressing the immunoreactive epitope using a live production vector; and

f. formulating the live production vector into a vaccine.

19. A method of producing a recombinant proliferative ileitis vaccine comprising the steps of:

a. identifying a target immunogen of *L. intracellularis*;

b. sequencing the target immunogen of *L. intracellularis*;

c. inserting the sequence of the target immunogen of *L. intracellularis* into a production vector;

d. expressing the target immunogen of *L. intracellularis* by the production vector;

e. growing the production vector expressing the target immunogen; and

f. formulating the target immunogen into a vaccine.

20. A method of producing recombinant proliferative ileitis vaccine comprising the steps of:

a. identifying a target immunogen of *L. intracellularis*;

b. sequencing the target immunogen of *L. intracellularis*;

c. inserting the sequence of the target immunogen of *L. intracellularis* into a live production vector;

d. growing the live production vector expressing the target immunogen; and

e. formulating the live production vector into a vaccine.

21. A method of preparing a recombinant vaccine comprising the steps of:

a. preparing a monoclonal antibody to a functional immunogen of *L. intracellularis*;

b. identifying the functional immunogen detected by the monoclonal antibody as a target immunogen;

c. sequencing the target immunogen;

d. expressing the target immunogen in a production vector;

e. growing the production vector to express the target immunogen; and

f. formulating the target immunogen into a vaccine.

22. A method of protecting a mammal from disease caused by *L. intracellularis* comprising, administering to said mammal the vaccine according to Claims 1.

23. A method of diagnosing proliferative ileitis wherein a target immunogen of *L. intracellularis* is detected by an assay selected from the group consisting of FA, IFA, PCR and ELISA.

24. A method of quantitating antigenic mass during vaccine production comprising detecting an antigen with a molecular weights selected from the group consisting of 21 kDa, 31 kDa, 41 kDa, 43-44 kDa, 60 kDa, 71 kDa and ≥ 115 kDa.

25. The method of Claim 24, wherein the antigen is quantitated using an assay selected from the group consisting of ELISA and PCR.

26. The proliferative ileitis vaccine according to Claim 1 which produces an antibody in a pig, reacting with an antigen selected from the group consisting of 21 kDa, 31 kDa, 41 kDa, 43 kDa, 44 kDa, 60 kDa, 71 kDa, 115 kDa and >115 kDa.